

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
PENETRATING FLOODCOAT ON BRIDGE DECKS

MTN:MF

1 of 2

C&T:APPR:JFS:EMB:07-19-07

a. Description. Provide all labor, materials and equipment to prepare, clean and apply a penetrating epoxy healer-sealer to concrete bridge decks by floodcoating the deck and applying a fine aggregate. Perform all work according to the Standard Specifications for Construction, and this special provision.

b. Materials. Select the two component epoxy based healer-sealer and aggregate used in conjunction with the epoxy system from the following list:

<u>Liquid Binders</u>	<u>Supplier</u>	<u>Telephone</u>
Bridge Seal	Unitex	816-231-7700
Dural 335	Tamms Industries	800-218-2667
Sikadur 55 SLV	Sika Corporation	800-933-7452

<u>Aggregate Size</u>	<u>Aggregate Supplier</u>	<u>Telephone</u>
Mason Sand	Cheboygan Cement	231-627-3000
Grade 480	Nugent Sand	231-755-1686
AFS 50 (Coarse)	Sand Products Corp	906-292-5432
1L5W	Fairmont Minerals	269-465-5833 Ext 4223

The aggregate shall be angular, having less than 0.2 percent moisture, and free of dirt, clay, asphalt, and other foreign or organic materials. The particle size distribution shall meet the following requirements (ASTM C136):

Sieve Size	Cumulative % passing	
No. 4	100	
No. 8	98 – 100	
No. 16	92 – 100	
No. 30	77 – 97	
No. 50	13 – 47	
No. 100	2 – 8	
Pan	0	
	Minimum	Maximum
Fineness Modulus	1.20	2.20

c. Equipment. For the epoxy healer-sealer, the mixing and application systems shall be capable of accurately blending the epoxy resin and hardening agent, and shall uniformly and accurately apply the epoxy materials at the specified rate to the bridge deck in such a manner as to cover 100 percent of the work area.

The fine aggregate spreader shall be propelled in such a manner as to uniformly and accurately apply dry aggregate to excess onto the applied epoxy material, without tracking or visibly

deforming the surface of the floodcoat prior to initial set.

The vacuum truck shall be self-propelled to remove excess debris and aggregate.

For hand applications, equipment shall consist of calibrated containers, a paddle type mixer, smooth edge squeegees, and stiff bristle brooms, suitable for mixing and applying the epoxy and aggregate.

d. Construction.

1. Surface Preparation. Before application of the penetrating floodcoat, clean the entire deck surface by shotblasting to remove asphaltic material, oils, dirt, rubber, curing compounds, paint carbonation, laitance, weak surface mortar and other detrimental materials, which may interfere with the bonding or curing of the healer-sealer. The prepared deck surface shall conform to requirements described in the International Concrete Repair Institute Guideline No. 03732, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays, concrete surface profile 3 (CSP 3), or as directed by the Engineer. Paint line removal is not necessary. The shotblasting operation should not remove the existing texture (tining) from the deck surface. A vacuum or oil-free moisture-free air blast is required to remove all dust and other loose material.

Do not apply the penetrating floodcoat system on concrete deck patches less than 28 days of age. Patching and cleaning operations shall be inspected and approved prior to placing the overlay. Any contamination of the deck, or to intermediate courses, after initial cleaning, shall be removed.

There shall be no visible moisture present on the surface of the concrete at the time of application of the epoxy overlay. Conduct moisture testing in accordance with ASTM D4263. A transparent polyethylene sheet (4 mil) shall be taped to the deck. All edges will be sealed with tape that will stick to the concrete substrate. The plastic sheet will be left in place for a minimum of 16 hours to detect the presence of moisture in the deck concrete. Alternate methods to detect moisture must be approved by the Engineer. There shall be no moisture visible on the polyethylene sheet. Oil-Free compressed air may be used to dry the deck surface.

During preparation of the surface, the expansion joints, and any other areas not to be sealed, shall be protected from damage as approved by the Engineer. The protection shall be removed once the epoxy and aggregate has been applied and prior to initial set.

2. Application. The epoxy manufacturer representative shall be on site during installation to ensure that all preparation and application is done according to their requirements. Apply the Penetrating Floodcoat according to the manufacturer recommendations. The aggregate will be applied to excess prior to the healer-sealer taking initial set. After the healer-sealer has attained initial set, remove the excess aggregate, using self propelled brooms and vacuums, without damaging the textured surface of the concrete deck, unless otherwise directed by the on-site epoxy manufacturers representative. Brooming should be completed in the direction of the existing tining to restore texture to the deck surface. All excess healer-sealer/aggregate material shall be removed from the expansion joints and other areas not intended to be sealed as directed by the Engineer.

e. Measurement and Payment. The completed work as described will be measure and paid for using the following contract item (pay item):

Contract Item (Pay Item)

Pay Unit

Penetrating Floodcoat on Bridge Deck.....Square Yard